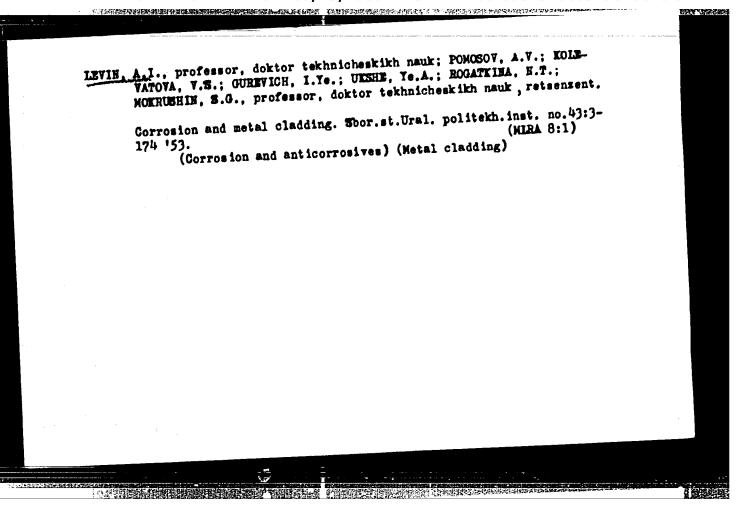
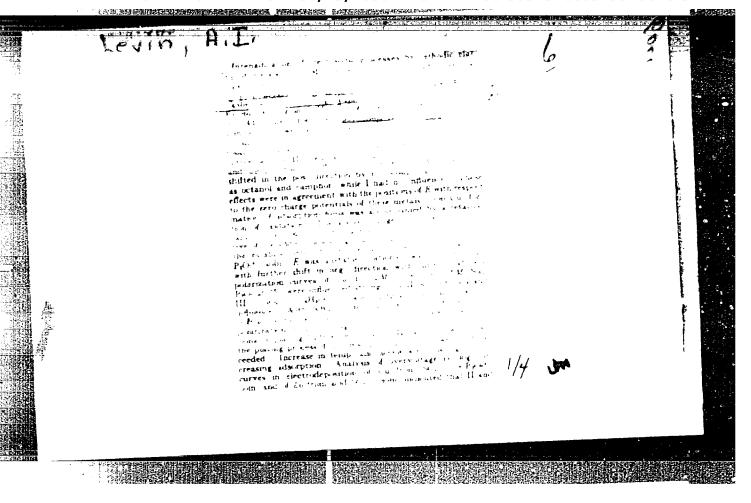
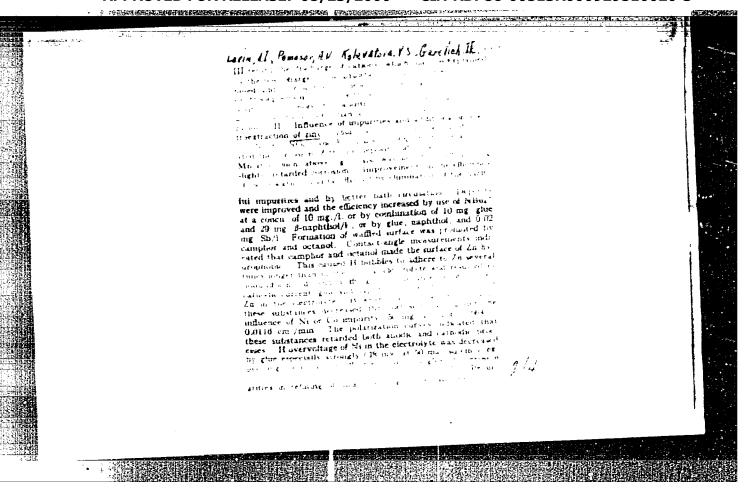
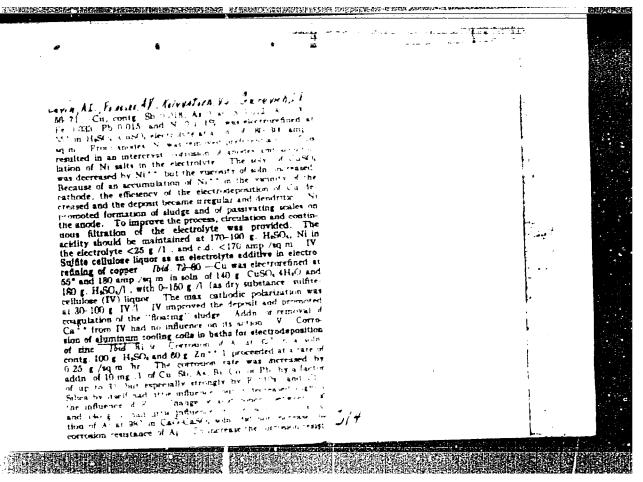


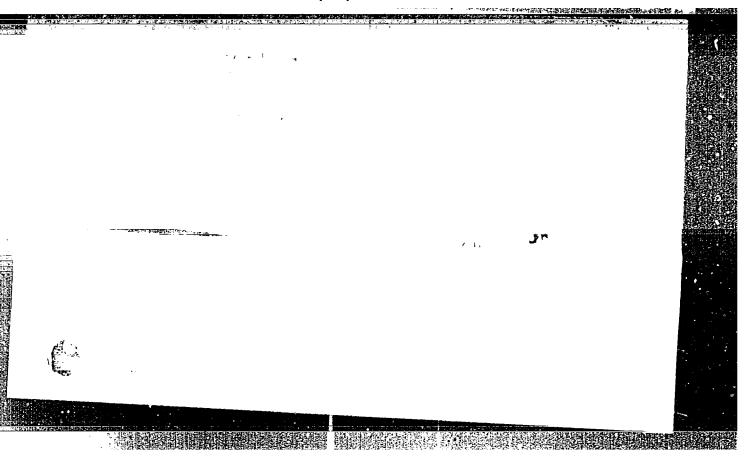
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LEVIN, A. I.	3	7
	Cathodic processes during electrodeposition of conner	•
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	Fig. Klim 27 1200 1 100 Phys. The red ery close M	
	during electrodeprosition of Cu from solute of Cu 22	•
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Vol. 48 No. 6	(sel) (I) which was the agranted to the salicylate, all and concer polarization in CuSO, who salicylate all mondener	·
Mar. 25, 1954		
Electrochemistry	on t probably because a sair conting to mend to be due to	
	diffusion only. In CuSC ₁ + Na.S.O ₁ equation I was valid	
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	In most cases all was review of the safe; thus ΔE was approached and of the complex-forming safe; thus ΔE was apprently due to the slowness of the transfer of Cu from the purently due to the slowness of the transfer of Cu from the	1
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*	4.1 × 10 ⁻¹⁰ , and [Cn(NH ₀) ₄] ** 7 × 10 ⁻¹⁰] J B	
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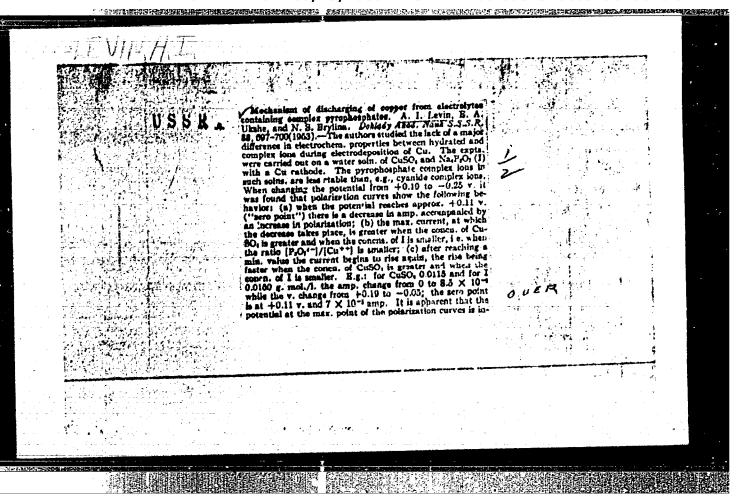


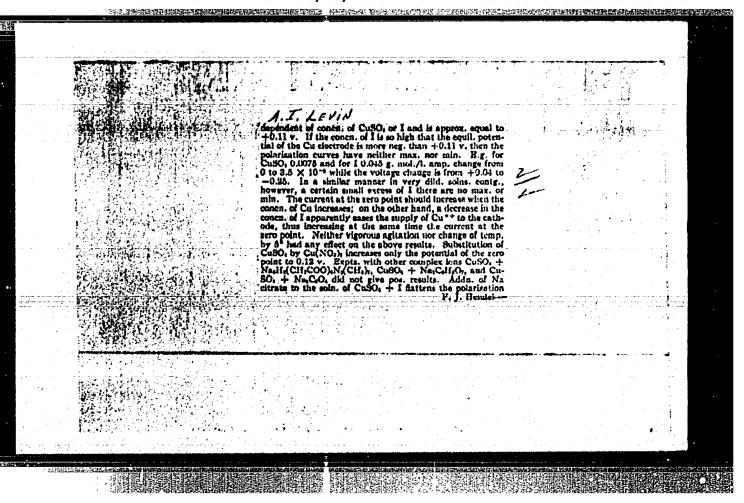


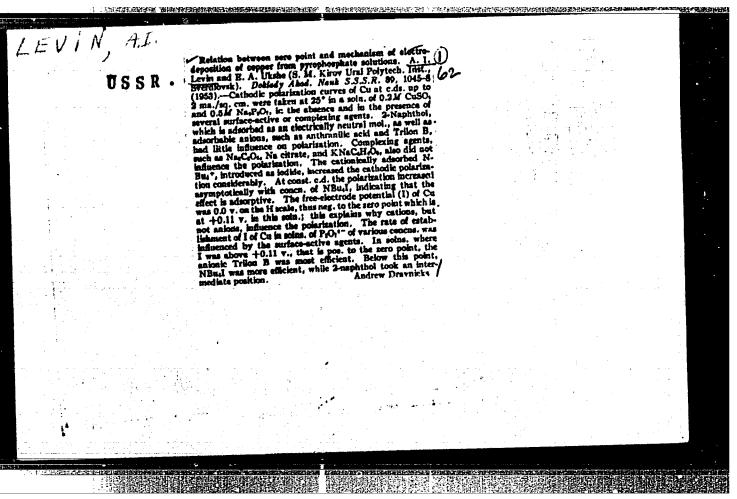


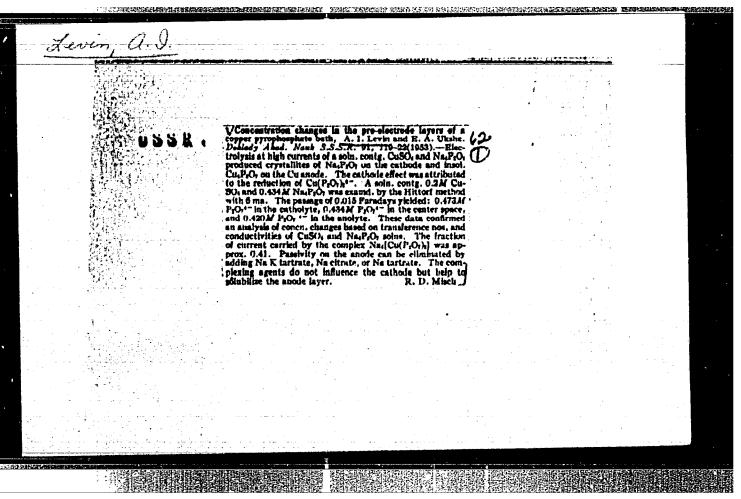


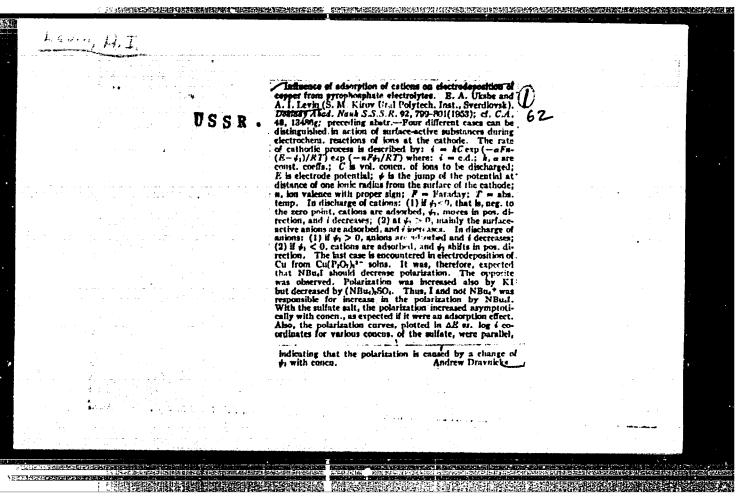












IEVIN. A. I. USSR/Chemistry - Physical chemistry Card Pub. 147 - 10/21 Ukshe, E. A., and Levin, A. I. Authors About the effect of admixtures on the electrodeposition of Cu from a Title pyrophosphate electrolyte Zhur. fiz. khim. 8, 1434-1438, Aug 1954 Periodical The effect of Pb and Fe admixtures on the cathode process of Cu-Abstract deposition with a pyrophosphate electrolyte, was investigated. The effect of J', Cl' and Br'-admixtures on the performance of a copper-pyrophosphate electrolyte, was determined. The quality of the cuprous precipitates was investigated visually, the flux yield by means of Coulomb meter and the electrode potentials by means of a special calibrated cathode voltmeter. Results are given in tables. Eight references: 5-USSR and 3-USA (1944-1953). Tables; graphs. Institution : The S. M. Kirov-Ural Folytechnicum, Sverdlovsk : October 5, 1953 Submitted

LEVIN. A. I.

USSR/Chemistry

Card 1/1

Authors

Ukshe, E. A.; and Levin, A. I.

Title

The composition and properties of a complex electrolyte of a cupric-pyrophosphate bath.

Periodical

2 Zhur. Ob. Khim. 24, Ed. 5, 775 - 780, May 1954

Abstract

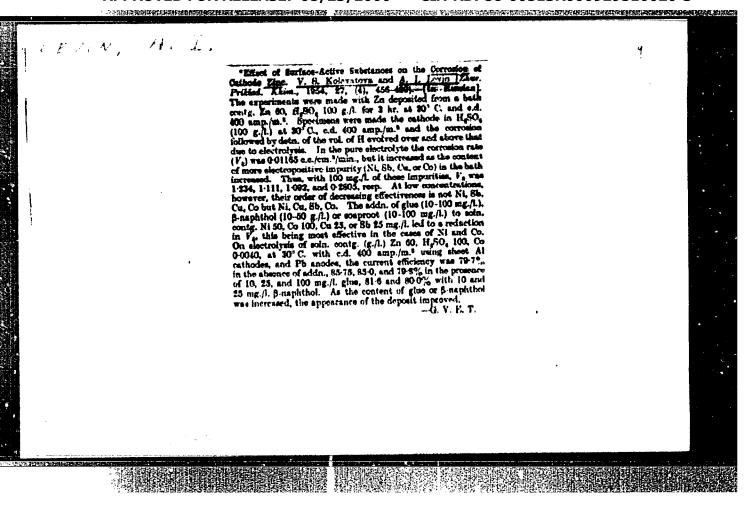
The problem concerning the composition of complex ions in a real pyrophosphate electrolyte suitable for galvanic copper plating was studied. The instability constants of copper pyrophosphate complexes were measured by the potentiometric method. Values were established for $K_1 = 0.63 \cdot 10^{-0}$ and for $K_2 = 0.5 \cdot 10^{-10}$. The dependence of the electro-conductivity of the $\text{CuSO}_4 - \text{Na}_4 P_2 O_7 - \text{H}_2 O$ system on the concentration of components was investigated and the bend observed in the electro-conductivity curve indicated a complete transformation of the copper into a complex ion. Ten references. Tables, graphs.

Institution

The S. M. Kirov Polytechnical Institute, Ural

Submitted

October 6, 1953



AID P - 916

LEVIN, A.I.

Subject : USSR/Chemistry

Card 1/1 Pub. 152 - 7/22

Authors : Kolevatova, V. S. and Levin, A. I.

Title : Causes of the inhibition of corrosion of cathodic zinc

in the presence of surface-active substances

Periodical: Zhur. prikl. khim., 27, no. 5, 506-513, 1954

Abstract : Study of the effect of surface-active substances on the

overvoltage of hydrogen and on the critical current density of metals (nickel, cobalt, copper, and antimony) has shown that with increase in the concentration of the surface-active substances the overvoltage of hydrogen increases to a certain limit and then decreases gradually. The anodic potential of zinc dissolution becomes positive

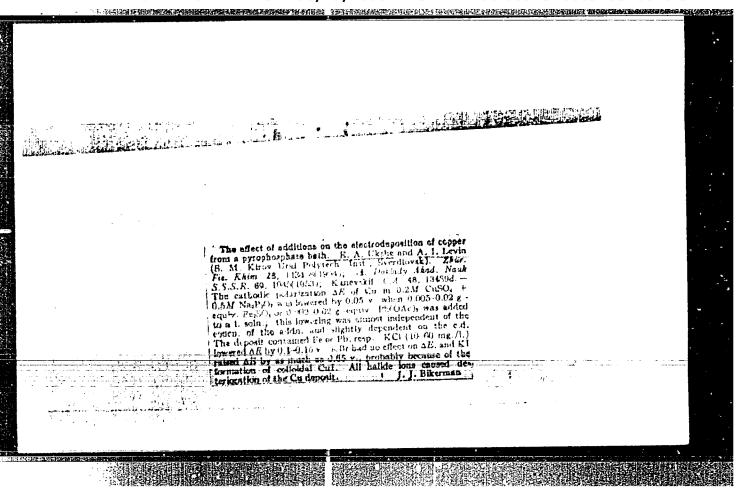
when surface-active substances are introduced into the solution. Two tables, 6 diagrams, 9 references (Russian:

1932-1954).

Institution: None

Submitted : J1 12, 1952

LEVIN, A.I. USSR/Chemistry - Electrodeposition Pub. 147 - 17/26 Card 1/1 Levin, A. I.; Ukshe, E. A.; and Kolevatova, V. S. Authors Effect of surface-active substances of the electrodeposition of metals Title: Zhur. fiz.khim. 28/1, 116-126, Jan 1954 Periodical The effect of surface active substances on the electrode potentials in Abstract the absence of current was investigated. The position of the zero point of the metal and its effect on the change of the equilibrium potentials with time was determined. It was established through study of the effect of surface-active substances on the electrode polarization that such substances have highly inhibiting effect on the cathod process. Ninteen USSR references (1919-1953). Tables; graphs. The S. M.Kirov-Ural Polytechnicum, Sverdlovsk Institution : March 28, 1953 Submitted



生的社会和教育性的表现的表现的表现的。**"我们对这种证明的**是是一种特殊的意思。"在我们对这个特别的认识的一个。对此,是他们在全部也不可能的,这种人的关键,可以是

LEVIN, A. I.

USSR/Chomistry - Physical chemistry

Gard 1/1 Pub. 147 - 15/27

Authors : Levin, A. I., and Falicheva, A. I.

Title : Mechanism of electrodeposition of chromium

Periodical : Zhur. fiz. khim. 28/9, 1652-1661, Sep 1954

Abstract: Various literature data regarding the mechanism of Cr electrodeposition were analyzed. Study of the electrolysis of chromic anhydride solutions showed sharp current drops on Pt-, Ag-, Cu-, Fe-cathodes which, as a rule, are close to the zero-charge potentials for above mentioned metals. No current drops were revealed in the case of Ni-, Cr-, Cd-, Zn-cathodes. This phenomenon is explained by the possibility of direct reduction of chromate (CrO%) or bi-chromate (CrO%) anions on the cathode. The effect of the electrode surface charge on the kinetics of electrode reactions is explained. Thirty-two references: 20-USSR; 7-German; 4-USA and 1-English (1854-1954). Graphs; draw-

ing.

Institution: The S. M. Kirov Ural Polytechnicum, Sverdlovsk

Submitted : January 19, 1954

USSR/Physics - Complex ions

Card 1/1 Pub. 147 - 22/25

Abstract

Authors : Levin A.I. and Ukshe, E. A.

Title | About the nature of complex ions participating in a cathode process

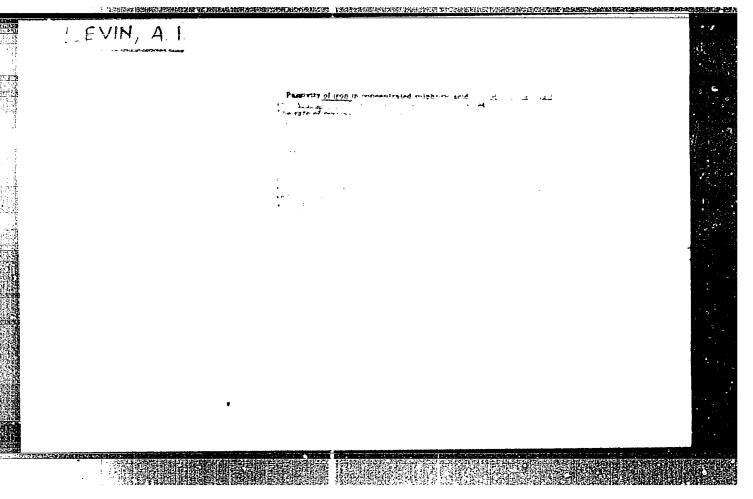
Periodical : Zhur. fiz. khim. 28/10, 1859-1861, Oct 1954

Literature and experimental data are presented showing that the electrocrystallization of metals from their own complex salt solutions takes place as result of direct reduction of the complex ions or molecules on the cathode followed by simultaneous separation of the metal. This was ferral to be perfectly possible in the presence of a cupric pyrophosphate complex Cu(P207)2 0-+2e -> Cu + 2P207 or a cyanine complex electrolyte Ag(CN)2 -+e -> Ag + 2CN . Many facts confirming the mechanism of electrode reactions are cited. It is pointed out that a solution containing complex ions of any given metal and a specific surplus of the complex forming agent may have numerous complex ions regardless of the fact that the concentration of one of the ions may be prevalent in the given solution.

Nine references: 8-USSR and 1-German (1942-1954).

Institution: The S. M. Kirov-Ural Polytechnicum, Sverdlovsk

Submitted: February 15, 1954



LEVIN, A.I., FALICHEVA, A.I., UKSHE, E.A., and BHYLRIA, M.S.

"Mechanism of Electrodeposition of Chromium," Dokl. AM SSSR, 95, No.1, pp 105-108, 1954.

Abstract A-hhhl3h, 12 Aug 55

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000929510020-3"

LEVIN, A.I.

USSR/Chemistry - Physical chemistry

Card 1/1 : Pub. 22 - 34/47

Authors : Novakovskiy, V. M., and Levin, A. I.

Title : Anodic passivation of iron in concentrated sulfuric acid

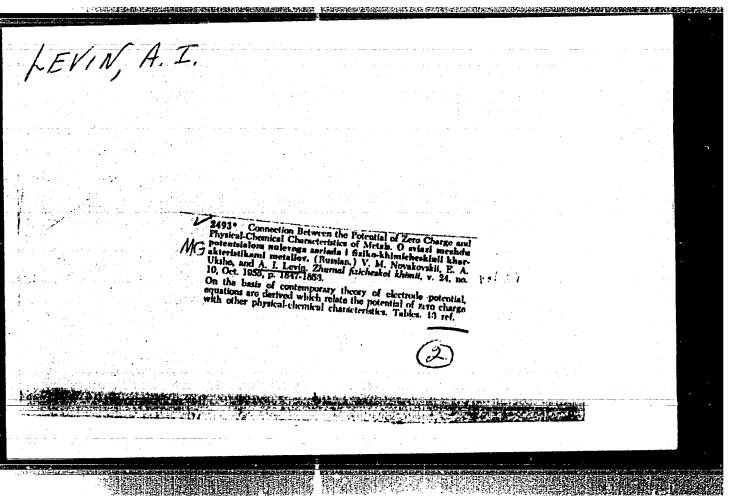
Periodical : Dok. AN SSSR 99/1, 129-132, Nov 1, 1954

Abstract

The results obtained by studying the anodic polarization of steel electrodes, in a concentrated sulfuric acid saturated with ferrous sulfate, are presented. The important role of the sulfate layer in the passivation of iron-carbon alloys is explained. The possibility of applying anodic passivation for corrosion-protection of iron-carbon alloys, in concentrated sulfuric acid, was discussed. Nine references: 6-USSR and 1-German (1930-1954). Graphs; diagram.

Institution: The S. M. Kirov Ural Polytechnicum, The Ural Scientific Research
Institute of Chemistry

Presented by: Academician S. I. Vol'fkovich, June 8, 1954



和抗性的结果的强性的现在分词 医动物性神经病 经现代的 经现代的 计可以 经证明 "我们是我们的,我们们是这个人的,我们们是这个人的,我们们就是这种的人,我们就是

AID P - 2777

Subject : USSR/Chemistry

Card 1/1 Pub. 152 - 5/19

Authors : Ukshe, Ye. A. and A. I. Levin

Title : Characteristics of the cathodic process in a copper

pyrophosphate cell

Periodical ; Zhur. prikl. khim. 28, 4, 388-393, 1955

Abstract

: With an increase in the amount of copper contained in the electrolyte, the current efficiency of copper increases. Four basic types of cathodic deposits are described. One table, 4 diagrams, 13 references (12 Russian: 1939-1953).

Institution: Electrochemical Laboratory of the Ural Polytechnic

Institute im. S. M. Kirov.

Submitted : 06, 1953

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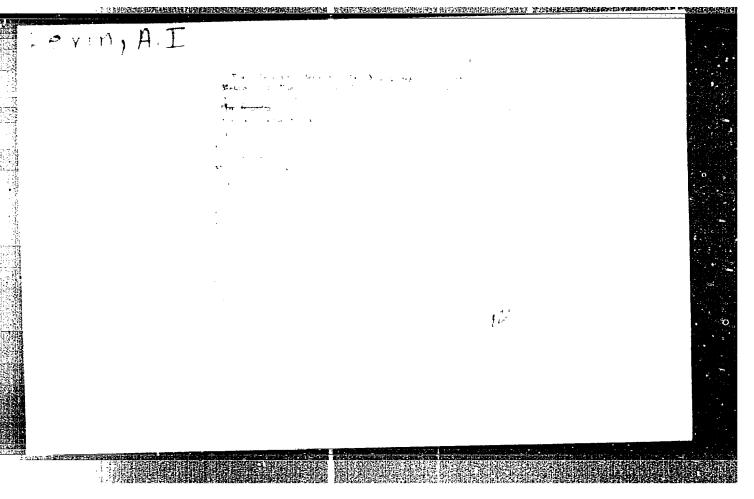
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	LEVIN, A.I.
USSR/ Chemistry -	
Card 1/2	Pub. 147 - 12/26
Authors :	Lévin, A. I. and Falicheva, A. I.
Title I	Study of cathode processes during galvanic chrome plating
Periodical :	Zhur. fiz. khim. 29/1, 95-104, Jan 1955
Abstract 1	Investigation was conducted to observe the electrode polarization during chromium electrodeposition and to establish its relationship to various electrolysis factors (temperature, concentration, solution circulation, etc.) The Crpotentials were measured in the absence of the current and it was found that the equilibrium potentials of Cr are highly unstable and depend upon the material, the characteristics of the electro surface and the adsortion processes occurring at the time.
Institution :	The S. M. Kirov Ural Polytechnicum, Sverdlovsk
Submitted :	April 29, 1954

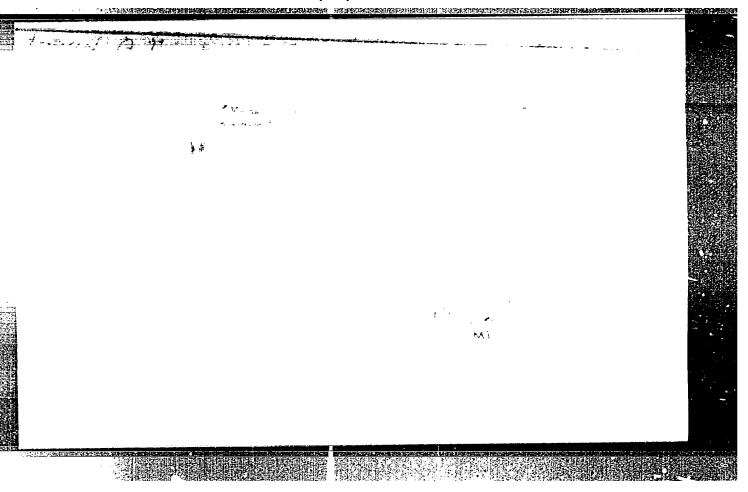
Periodical: Zhur. fiz. khim. 29/1, 95-104, Jan 1955

Card 2/2 Pub. 147 - 12/26

Abstract: It was established that the polarization during the reduction of chromate ions on the cathode caunot be explained by concentration difficulties but rather by the chemical nature of the substance. Seventeen references: 2 USA; 13 USSR; and 2 German (1920-1954).

Dlagrams





LEVIN, AI.

USSR/ Physical Chemistry - Electrochemistry

B-12

A PRESENTATION OF THE PROPERTY OF THE PROPERTY

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 11350

Author: Levin A.I., Pushkareva S.A.

Title : On the Effect of Anions on pH Value in Hydrate-Formation and

Electrodeposition of Pulverulent Metal from Solutions of Iron Sulfate

Orig Pub : Zh. prikl. khimii, 1956, 29, No 8, 1223-1229

Abstract : By electrolytic titration with a glass electrode a study has been made of

the pH of initial hydrate formation in FeSO4 solutions, depending on the concentration of FeSO4, nature and valency of extraneous anions (A) (Cl, NO3, SO4, PO4, PO4, and organic substances (gelatin, Trylon B, extract of chlorvinyl fabric). With increase in FeSO4 concentration the pH of initial hydrate formation decreases. Influence of extraneous A on lowering of pH of hydrate formation is the more pronounced the higher the charge of A. Organic substances affect pH of hydrate formation only if they dissociate in solution with formation of surface-active A. It is shown that in order to produce highly dispersed pulverulent Fe the most stable

electrolyte is 1.5M FeSOh+ 40 g/1 NaCl.

1/1

LEVIN, A.I.

USER/ Chemistry - Physical chemistry

Card 1/1

Pub. 147 - 12/21

Authors

Novakovskiy, V. M.; Ukshe, Ye. A.; and Levin, A. I.

Title

Relation between zero charge potential and the physico-chemical properties of metals

Periodical

Zhur. fiz. khim. 29/10, 1847-1853, Oct 1955

Abstract

The difference between a normal potential and a zero charge potential which is an intrinsic characteristic of a metal electrode, is described. Employing the modern theory of electrode potentials the authors formulated certain equations which prove a definite relation between the zero charge potential and the physico-chemical properties of metals. The physical sense of the constants included in some of the equations is explained. Thirteen references: 11 USSR, 1 USA and 1 Germ. (1937-1954). Tables.

Institution :

Ural Polytechnic Inst. im. S. M. Kirov and the Ural Chem. Inst.

Sverdlovsk

Submitted

February 15, 1955

LEVIN, A.I.

USSR/ Chemistry - Physical chemistry

Card 1/1

Pub. 22 - 27/49

Authors

Ukshe, E. A., and Levin, A. I.

Title

Combined deposition of copper and hydrogen during the electrolysis complex solutions

Periodical

Dok. AN SSSR 100/5, 943-946, Feb 11, 1955

中,中国的**经验的,这个时间,**这个人的时间,我们就是这种的,他们就是这种的,我们就是我们的是是我们的,我们就是我们的,我们就是我们的一个人,他们就是我们的一个人

Abstract

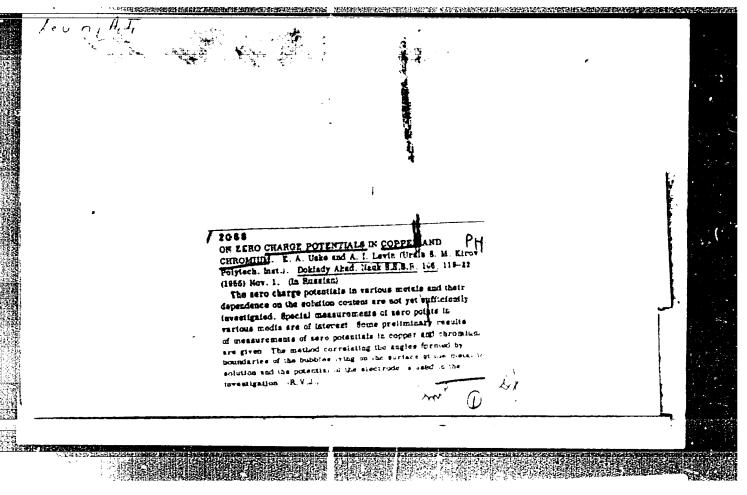
The results obtained in studying the mechanism of Cu electrodeposition in complex solutions are described. The laws governing the combined metal and hydrogen deposition are explained. The possibility of applying the O. A. Esin method to the study of the kinetics of electrode processes during metal deposition in complex electrolytes is debated. It was found that the characteristics connected with the lameler growth of crystals and with the change in the actual active surface due to current density are of lesser importance in the case of complex electrolytes than in the case of metal deposition in concentrated simple salt solutions. Eight references: 7 USSR and 1 USA (1929-1953). Graphs.

Institution :

The S. M. Kiroy Ural Polytechnicum

Presented by:

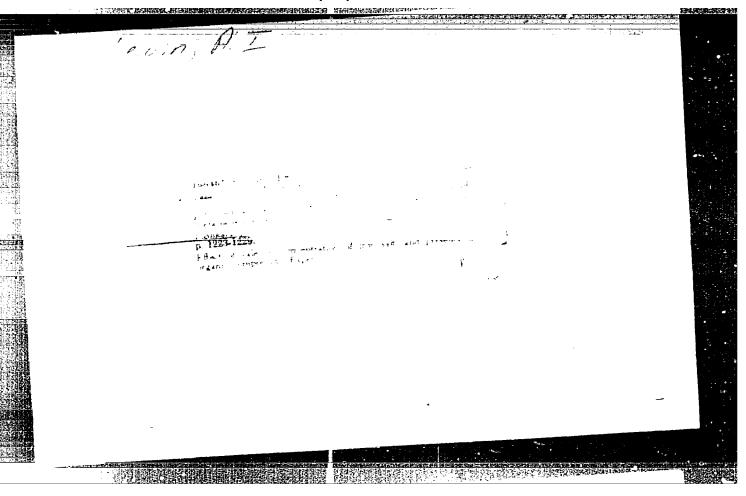
Academicion A. N. Frunkin, July 12, 1954

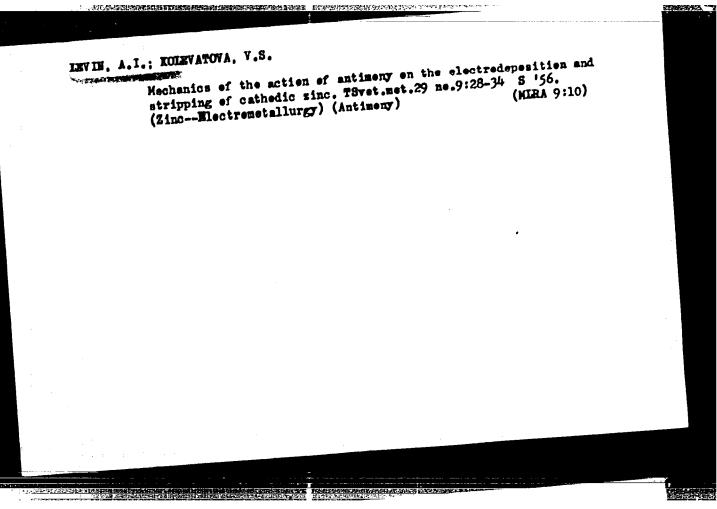


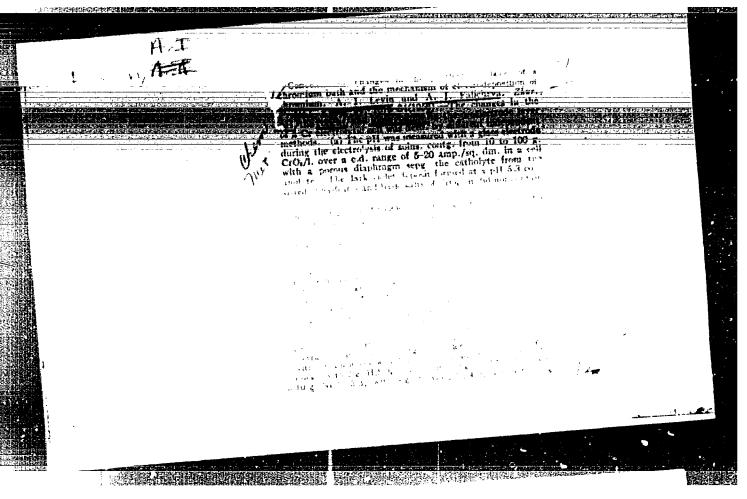
UKSHE, Ye.A.; LEVIN, A.I.

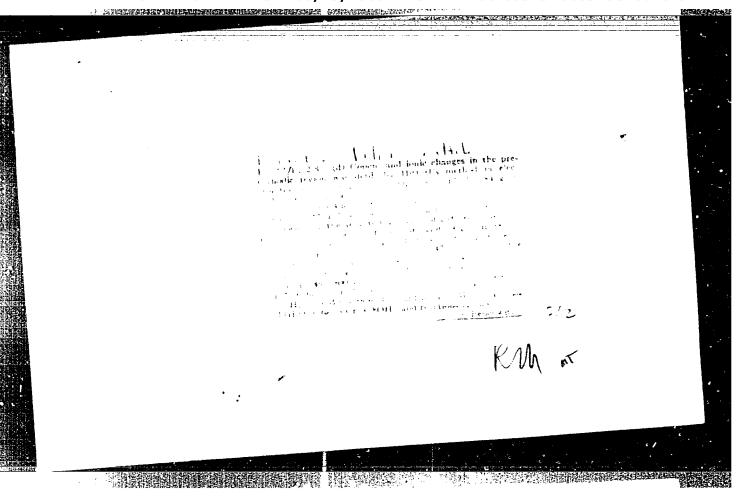
Composition of the pyrophosphate copper bath; discussion.
Zhur.ob.khim. 26 no.9:2657-2659 S '56.

1. Ural'skiy politekhnicheskiy institut imeni S.M. Kirova.
(Copper pyrophosphates)









LEVIN, A. I.

"Work in the Tool Factory in Moscow."

Programmed Control of Metal Cutting Machines. report presented at All-Union Conference, Moscow, 13-16 Nov 1957
Vestnik Ak. Nauk SSSR, 1958, No. 2, pp. 113-115. (author Kobrinskiy, A. Ye.)

CIA-RDP86-00513R000929510020-3" APPROVED FOR RELEASE: 08/23/2000

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137-58-6-12949

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 252 (USSR)

Levin, A.I., Falicheva, A.I. AUTHORS:

Concentration Changes in Applied Layers of Chrome Bath and TITLE:

the Mechanism of Electrolytic Deposition of Chromium (Kontsentratsionnyye izmeneniya v prikladnykh sloyakh khromovoy

vanny i mekhanizm elektroosazhdeniya khroma)

V sb.: Teoriya i praktika elektrolit. khromirovaniya. Mos-PERIODICAL:

cow, AN SSSR, 1957, pp 44-60

A study was performed of the pH and of the composition of a ABSTRACT:

chrome electrolyte without current and during the process of electrolysis. Measurements were taken by three independent methods: a) electrometrically, by means of a glass electrode; b) by potentiometric titration, for determining the pH of hydrate formation; c) chromatographically, with the use of indicators. It is shown that electrolytic deposition of Cr is in many ways similar to deposition of metal from compound complex electrolytes, where the ion composition of the electrolyte undergoes noticeable variations depending upon the conditions and

changes of concentration prevailing in the electrolyte. It is Card 1/2

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THE STREET STREET, STR

Concentration Changes in Applied (cont.)

established that the pH of the space near the cathode in the chromium bath changes from 0.08 to 6 depending upon the initial concentration and the cd. The point of hydration of $Cr(OH)_3$ is near pH 5.3. Admixtures of some metals (Fe, Al) lower the pH of the beginning of formation of the solid phase and form compounds the solubility of which is less than that of $Cr(OH)_3$. Organic impurities lower the pH of formation of $Cr(OH)_3$ while there is an increase of concentration of Cr^{3+} . It is shown that of the three possible ions on the first and second branches of the polarization curve the process of reduction of $Cr_2O_7^2$ predominates. CrO_4^{2-} is directly reduced to metal. A mechanism explaining the effect of SO_4^2 on the process of electrolytic deposition of Cr is proposed. Bibliography: 23 references. Ref. also RzhMet, 1957, Nr 6, abstract 10533.

1. Chromium--Electrodeposition 2. Electrolytes--Properties 3. Electrolytes--Electrical factors 4. Hydrogen ion concentration analysis

Card 2/2

CIA-RDP86-00513R000929510020-3 "APPROVED FOR RELEASE: 08/23/2000

137-58-6-12948

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 252 (USSR)

Falicheva, A.I., Levin, A.I. AUTHORS:

Principal and the principal an

Electrolytic Chrome Plating in Cold Baths (Elektroliticheskoye TITLE:

khromirovaniye iz kholodnykh vann)

V sb.: Teoriya i praktika elektrolit. khromirovaniya. Mos-PERIODICAL:

cow, AN SSSR, 1957, pp 194-203

Work was carried out with the object of determining optimal ABSTRACT:

conditions for obtaining bright Cr coatings at room temperatures in the usual Cr baths. It is shown that for Cu, Ni, and brass parts high-quality Cr coatings may be produced at room temperatures. For low-profile parts the best results are obtained by using the following electrolyte: CrO3 100-150 g/liter; H₂SO₄ 2-3% (of CrO₃ weight), Cr³⁺ ≤ 3 g/liter. For Cu and brass, a cathode cd of 6-10 amp/dm², and for Ni a cathode cd of between 10 and 15 amp/dm² achieves a rate of deposition of 1/4 in 2.5 min. For shaped parts good deposits are obtained in a bath containing 250-300 g/liter of CrO₃, 2-3% (of CrO weight)

of H_2SO_4 , and $Cr^{3+} \le 3$ g/liter; the cathode cd should be Card 1/2

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137-58-6-12948

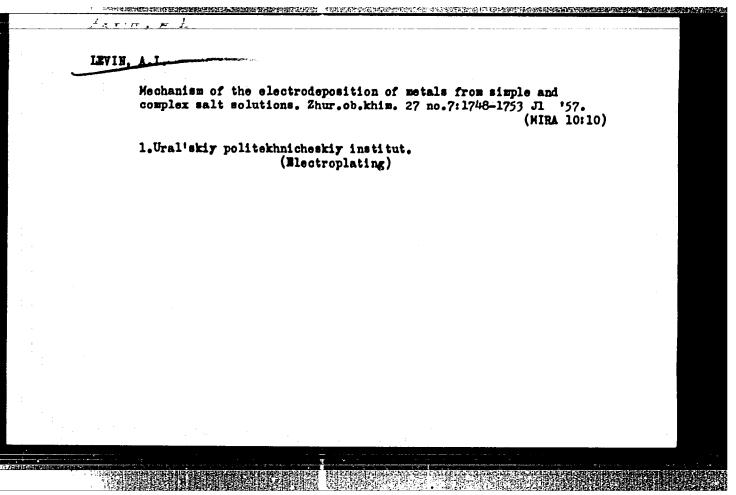
Electrolytic Chrome Plating in Cold Baths

10-15 amp/dm² for Cu and 18-20 amp/dm² for Ni to achieve a rate of deposition of Cr of 1/M in 3.5 min. Cold chrome-plating baths have many advantages as compared to electrolytes working at an elevated temperature.

L.A.

1. Chromium plating--Processing 2. Electrolytes--Temperature factors 3. Electrolytes--Properties

Card 2/2



LEVIN,AI

LEVIN, A.I.; PUSHKAREVA, S.A.

Adsorption phenomena and cathodic processes involved in the electrodeposition of iron both in the compact and powdered form [with summery in English]. Zhur.fis.khim. 31 no.9:1983-1991 S '57. (MIRA 11:1)

1.Ural'skiy politekhnicheskiy institut, Sverdlovsk.
(Iron) (Electroplating) (Adsorption)

137-58-4-6818

THE VICE WE WAS A STREET

franslation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 4. p 73 (USSR)

Levin, A. I., Rogatkina, T.N. AUTHORS:

与用水管中国的地方的特别。

The Effects of Surface-tension Reducing Substances in the Electro-TITLE:

deposition of Copper (O deystvii poverkhnostnoaktivnykh vesh-

chetsv pri elektroosazhdenii medi)

Tr. Ural'skogo politekhn. in-ta, 1957, Nr 69, pp 34-49 PERIODICAL:

The speed with which equilibrium is attained in pure and additive-containing systems consisting of Cu and Cu ions is stud ABSTRACT: ied. The presence of surface-tension reducing substances has a pronounced effect on the kinetics of the establishment of equilibrium. The dependence of the potential of the Cu electrode on the time elapsed from the moment it is lowered into the solution is expressed by the equation $\sigma_c = \pm 0.013 \log \tanh \Delta \Phi / 2b^2 + const.$ Surface-tension reducing substances exercise a significant influence upon the wettability of cathodic Cu. When combinations of additives are employed, the polarizing effect is promoted. Combinations of molecular organic substances and technical organic substances and technical organic high-molecular intermed-

iates in conjunction with anion-active additives yield the best Card 1/2

137-58-4-6818

The Effects of Surface-tension (cont.)

results. Additives of this type make for dense, fine crystalline Cu deposits.

G.S.

1. Copper--Plating--Surface tension--Reduction--Effects

Card 2/2

137-58-4-7865

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 4, p 214

Falicheva, A.I., Levin, A.I. AUTHORS:

Chromium Electroplating from Cold Baths (Gal'vanicheskoye TITLE:

khromirovaniye iz kholodnykh vann)

Tr. Ural'skogo politekhn. in-ta, 1957, Nr 69, pp 50-64 PERIODICAL:

Tests were made of electrolytes (E) containing 75, 100, 150, 200, and 300 g CrO3 per liter, with H2SO4 added in an amount ABSTRACT: of 1 to 5% of the weight of the CrO3 and a temperature of 200 ± 2°C, although on occasion, when Dk was high, the temperature was 24-25°. The volumetric Dk was 2-3.5 amp per liter of electrolyte. It was found that good Cr platings are produced on Cu with Dk of 4 to 100 amps/dm2 at all the CrO3 strengths indicated above and with an H2SO4 content of from 1 to 3%. The brightest coatings were produced in E having the lowest CrO3 concentrations. Cr current efficiency in cold baths was higher than in hot baths. Current efficiency diminished somewhat as the H2SO4 content was raised with constant D_k and CrO_3 content. The Cr brightness diminished when $Cr^{3+}>4$ g/liter. An increase in H2SO4 content (up to 3%) improves the brightness of the deposits

Card 1/2

1 37-58-4-7865

Chromium Electroplating from Cold Baths

and reduces current efficiency. It was found that the amount of Cr^{3+} in the E is reduced with increase in plate surface. It was established that bright Cr deposits are produced in all the indicated E when chromium-plating is conducted for a long time, 60-90 min, when D_k is 4 to 10 amps/dm². When the chromium-plating process continues for a longer time, the deposit at the cathode edges is gray. Precipitation of Cr on Ni required higher D_k than deposition on Cu, and the bond between the Cr and the Ni is weaker. A D_k of 20-25 amps/dm² and $48-50^{\circ}$ temperature is required to produce bright Cr deposits on steel, while the D_k needed for deposition on Cu, brass, and Ni is 4 to 15 amps/dm² at room temperature. The highest quality bright coatings of Cr on Cu, brass, and Ni are produced in E containing 100-150 g CrO3 per liter, 1 to 3% H₂SO₄, $Cr^{3+} \le 3$ g/liter, and $Fe^{3} \le 2$ g/liter at D_k of 4-10 amps/dm². $18-22^{\circ}$, and volumetric $D_k \le 0.5$ amp/liter. Current efficiency 14-24%. Maximum thickness of Cr deposits 20 microns.

R.S.

1. Chromium plating

Card 2/2

A. I. LEVIN, A. V. POMOSOV

"On Hydrometallurgical Treatment"

The Ural'skiy Politekhnicheskiy Institute

report submitted at a conference on new methods of lead production from concentrates, Gintavetmet (State Inst. Mon-Ferrous Metallurgy), Moscow 22-25 June 1958.

(for entire conf. see card for LIDOV, V. P.)

SOV/137-58-9-19455

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 187 (USSR)

Levin, A.I., Falicheva, V.I. AUTHORS:

Employment of Radioactive Indicators for the Investigation of TITLE the Inhibition of Corrosion With Externally Applied Current (Primeneniye radioaktivnykh indikatorov dlya issledovaniya

tormozheniya korrozii nalozhennym izvne tokom)

Nauchn. dokl. vyssh. shkoly. Khimiya i khim. tekhnol., PERIODICAL:

1958, Nr 1, pp 32-35

The mechanics of the inhibition of corrosion (C) in acid by ABSTRACT: means of externally applied current were studied. The rate of C and the magnitude of the potential of Zn were measured. The

specimens were prepared by the electrolytic deposition of Zn on a Pt plate from a solution containing the Zn isotope. The rate of C was characterized by the amount of "tagged" Zn which went into solution. The rate of C of Zn proved to be the highest in the absence of current, decreased considerably with an increase of cathode polarization and upon attainment of the

value of "protective" potential it was completely inhibited. It

is assumed that the mechanics of the protective action of the Card 1/2

SOV/137-58-9-19455

Employment of Radioactive Indicators for the Investigation (cont.)

current related first of all to the process of reorganization of the binary electric layer on the metal-solution interface. Passivity of the metal sets in when the number of electrons in the active areas of its surface becomes sufficient for the retention of the Zn cations from their going out of the liquid lining of the binary layer into the electrolyte mass. For metals with a great H overv tage a lower cathode current density would be needed for the creation of the necessary protective cathode polarization.

V.G.

1. Zinc-Corrosion 2. Electrolytes-Performance 3. Zinc isotopes (Radioactive) --Applications 4. Corrosion-Test results

Card 2/2

soV/137-58-11-22244

Translation from: Referativnyy zhurnal. Metallurgiya, 1958, Nr 11, p 58 (USSR)

Utilization of Surface-active Substances in the Electrodeposition of Levin, Ada AUTHOR:

Zinc (O primenenii poverkhnostnoaktivnykh veshchestv pri TITLE:

elektroosazhdenii tsinka)

PERIODICAL: Izv. vyssh. uchebn. zavedeniy. Tsvetn. metallurgiya, 1958,

Nr 1, pp 82-85

Proceeding from the theory and practical results of the utilization of addition agents in the electrolytic deposition of Zn, compound ABSTRACT:

addition agents containing 2 or more substances in various ratios and concentrations have begun to be introduced into industrial electrolytes. Examination is made of the nature of the action of these compound agents, consisting of joiner's glue, β-naphthol and Sb salts in various strengths. The investigation is run under both laboratory and shop conditions. A theoretical rationale for the action of addition agents and combinations thereof is provided. An

optimal addition-agent combination is found: 10 mg/liter glue, 20 mg/liter β-naphthol, 0.02 mg/liter Sb (in the form of "tartar

Card 1/2

sov/137-58-11-22244

Utilization of Surface-active Substances in the Electrodeposition of Zinc

emetic"). Use of this combination improved coating quality and increased the current efficiency for Zn by 1.5-2% as compared to average indices for the department.

B. L.

Card 2/2

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000929510020-3"

THE REPORT OF THE PROPERTY OF

POMOSOV, A.V.; LEVIH, A.I.; METHAKOVA, Ye.Ye.

Electrodeposition of compact lead from chloride solutions. Trudy
Inst. met. UPAN SSSR no.2:243-252 '58.
(Lead-Blectrometallurgy)

(Lead-Blectrometallurgy)

POMOSOV, A.V.; IRTHAKOVA, Te.Ye.; LEVIH, A.I.

Study of sinc corrosion in sulfate electrolytes when admixtures are present. Zhur. prikl. khis. v. 31 no.5:734-742 My '58.

(MIRA 11:6)

(Zinc--Corrosion) (Zinc sulfate)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000929510020-3"

LEVIN, A.I.; PUSHKAREVA, S.A.

Concentration changes in the near electrode layer of an iron bath and peculiarities of cathodic deposition of iron. Zhur. prikl. khiæ. 31 no.7:1040-1047 JI '58. (MIRA 11:9)

(Iron) (Electrochemistry)

IEVIN, A.I.

Rature of cathodic processes retardation in complex electrolytes.

Zhur.fiz.khis. 32 no.2:472-475 F '58. (MIRA 11:4)

Zhur.fiz.khis. 32 no.2:472-475 (MIRA 11:4)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000929510020-3"

20-119-1-30/52

AUTHORS:

Levin, A. I., Savel'yev, S. S.

TITLE:

On the Mechanism of the Formation of Dichronic Acid at the Anode (O mekhanizme anodnogo obrazovaniya bikhromovoy kisloty)

PERIODICAL:

Doklady Akademii Nauk SSSR,1958,Vol.119,Nr 1,pp.110-112(USSR)

ABSTRACT:

The direct electrochemical method of producing dichromic acid is based on the application of the equilibrium $2\text{Cr}_4^{2} + 2\text{H}^+ \rightleftharpoons 2\text{HCr}_4^0 \rightleftharpoons \text{Cr}_2^{2}^{2} + \text{H}_2^0$, appearing between the

chromate anions at no current. With decrease of the pH-value and increasing concentration of the electrolyte containing chromium anhydride this equilibrium is shifted to the side . For the practical realization of Cr207 of formation of

the reaction the processes were investigated at the anode in a trough which has a certain similarity with a mercury electrolysis bath. The investigation of the possible processes at an electrode from lead dioxide shows the following: During the decay of the hydroxyl ions here a high polarization occurs. With sufficiently high current density at the anode after all

Card 1/3

Physics College

APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R000929510020-3"

20-119-1-30/52

On the Mechanism of the Formation of Dichromic Acid at the Anode an amplification of the concentration of the ions $\operatorname{Cr}_{2}^{2}$ an increase of the acidity of the electrolyte can be obsered. In this case the activity of the ions OH considerably decreases and their decomposition potential becomes very high. Because the anodic oxidation of the hydroxyl ions in highly acid solutions is accompanied by a noticeable retardation, also the occurrence of other processes becomes possible. At the anode one of the following processes can take place: $2H_2O - 4e \rightarrow O_2 + 4H^+, 2H_2O - 2e \rightarrow H_2O_2 + 2H^+, H_2O - 2e \rightarrow 0+2H^+$ The equilibrium potential corresponding to these processes amount to 1,229; 1,776 or 2,42 V respectively. The value of the anode potential φ of a trough containing sodium dichromate even with remarkable current density does not reach the value of the equilibrium potential $arphi_3$ of the reaction mentioned in the third place. The oxidation of water at the anode obviously takes place under production of molecular, but not of atomic oxygen. The influence of the hydrogen superoxide on the kinetics of production of dichromic acid can be neglected. The water surplus occurring during the electrolysis

of the sodium dichromate solutions in the anolyte gives evidence of the decomposition of this compound. This obviously takes

Card 2/3

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31733

S/081/61/000/021/043/094 B149/B101

5.1310

AUTHORS:

Levin, A. I., Savel'yev, S. S.

TITLE:

Preparation of polychromate solutions by electrolysis of sodium bichromate and subsequent electrodeposition of

chromium

PERIODICAL:

Referativnyy zhurnal. Khimiya, no. 21, 1961, 293, abstract 21K120 (Tr. Konferentsii po usoversh. tekhnol. proiz-va khromovykh i ftoristykh soley, 1957. L., Goskhimizdat, 1959, 31 - 37)

TEXT: The initial experiments were carried out in an electrolyzer with an immobile Hg electrode and a smooth Pb anode. The diaphragm was of porcelain or tuff. The current yield of H₂Cr₂O₇ was found to drop to 20% on extending the duration of electrolysis from 5 to 15 hrs and to rise to 82% on increasing Na₂Cr₂O₇ concentration from 50 g/liter to saturation at 30°C. The anodes were markedly inactivated. In order to enhance the process, the decomposition of Na₂Cr₂O₇ solutions was studied with forced circulation Card 1/2

31733

Preparation of polychromate solutions ...

S/081/61/000/021/043/094 B149/B101

of liquid Hg cathode and the anolyte. A diaphragm electrolyzer which is easy to dismantle is proposed, in which at D_a 26 a/dm² and initial Na₂Cr₂O₇ concentration of 500 g/liter the current yield of CrO₃ is 56% and the energy consumption 3.35 kilowatt-hours per kg of CrO₃. Polychromate solutions containing free H₂Cr₂O₇ were tested for obtaining metallic chromium by adding 1% H₂SO₄ (in relation to CrO₃) before electrolysis. Deposits of compact Cr were obtained at different D_c (30 - 70 a/dm²) from solutions containing 480 g/liter CrO₃, 462 g/liter Na₂Cr₂O₇, 312 g/liter CrO₃, and 1000 g/liter Na₂Cr₂O₇. [Abstracter's note: Complete translation]

Card 2/2

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		SALATE TO NOT EXPLOSE SOF 7216	Saveshchaniye po elektrokhimii. 4th, Moscow, 1996.	Trudy; [shornik] (Transactions of the Fourth Conference on Elget- reshemistry; Collection of Articles Moscow, Idd-vol MS 555., 1999; 860 p. Errata ally inserted. 3,500 copies printed. Sponsoring Agency: Akademiya nauk 3528, Otdelaniya Unimhanatikh	Main. Matterial Board: A.H. Friemin (Resp. Ed.) Academician. C.A. Yeelnd, Professor, S.I. Zhdanov (Resp. Secretary). B.H. Abbanov. Professor, S.I. Zhdanov (Resp. Secretary). B.H. Abbanov. Frofessor. Ye. M. Malocythin. Doctor of Chesical Sciences; V.V. Josev. P.D. Lanovresv. Frofessor; Lanovresv. Frofessor; Z.A. Solov'sews, V.V. Stenfor. Professor; and G.H. M. Ploriancian! Ed. of Publishing Mouse: M.G. Vegoror; Teah, Ed.: Flushors.	FULLYSI: This book is intended for chemical and electrical engineers, physiciats, metallurgists and researchers interested in merica, physiciats, electrochemistry. COVEMENT: The book contains 177 of the 113 reports presented at the Pourth Conference on Electrochemistry sponsored by the Department of Contains 18 the Pourth Conference on Electrochemistry sponsored by the Department of Contains 18 the Department of Contains 1	Assocy of Selences, USIR, The collection pertains to different brunches of alertrochesical kineties, double layer thousies and galeante processes in metal electrodepositon and industrial electropists. Abstracted discussions are given at the end of each distributed by the majority of reports not included here have been published in periodical interaction. We periodical interactions are sentioned.	Polukarov, N., R., and K.K. Gorbunova (Institute of Physical Chemistry, Academy of Sciences, USSR). Some Theoretical Problems on the Electrocrystallization of Alloys	Audithart, B. (Deceased) (France). Mechanism of Anode Dis-	Surgagina, A.A., and K.M. Gorbunova (Institute of Physical Chemistry, Academy of Sciences, USSR), Some Sepularities of the Electrocrystallization of Metals Under the Influence of an Alternating Current	Estatemer, R. Kineties of Bueles Formation During the Electro- 42 deposition of Metals	Mayakow, Yu-W. Kineties of the Joint Discharge of Ions Agr During the Electrolytic Deposition of Watsis	fransactions of the Pourth Conference (Cont.) SCV/2216	"Rudryavisev, H.T., and E.E. Tyutina (Institute of Chemical Technology leen D.I., Pendelsyev). Cathodic Polarization During the Electrodeposition of a Tin-Hickel Alloy as	Energeta, V.L., and A.L. Botinyan (Propektnyy i nauchno- lasi-dedewatell-key institut interjecy, wood-iteey i olosy. anney promyahlennesti-Planning and Stientific Pessarah Institute of the Mixet! Cobalt and Its Industry Joint Discharge of Ions and the Probase of Obsaining Metals of			423 Card 18/34		·
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S/137/61/000/001/043/043 A006/A001

Translation from: Referativnyy zhurnal, Metallurgiya, 1961, No. 1, p. 60, # 11525

AUTHOR:

Levin, A.I.

TITLE:

On the Mechanism of Electrochemical Reduction of Chromate Anions

With the Formation of Chromium Hydroxide on the Cathode

PERIODICAL:

V sb. "Vopr. teorii khromir", Vil'nyus, Gospolitizdat LitSSR, 1959,

。 [1] 上的时间的**出现,但时间,这时间,他是由于这一个**的时候就是在神经大型的人,但是这个人是是一个人的人,但是是他们的一个人的人,但是是一个人的人,也可以是一个

pp. 137 - 149, Diskus. pp. 177 - 191

TEXT: The author presents principles of the theory of electrochemical reduction of CrO₁ ions to Cr(OH)₃. Experimental data are given on the reduction of chromate anions with the formation of colloidal Cr hydroxide on the cathode. It is established that electrochemical reduction of chromate anions depends on the magnitude of overvoltage for the discharge of H ions and on the magnitude of deviation of the cathode potential from the potential of zero charge characterizing the electrode metal. There are 14 references.

Ye. L.

Translator's note: This is the full translation of the original Russian abstract. Card 1/1

APPROVED FOR RELEASE: 08/23/2000 C

CIA-RDP86-00513R000929510020-3"

AUTHORS: Levin, A. Ir, and Vlasov, V.I. SOV/136-59-5-7/21

TITLE: Ways of Further Improving and Intensifying the Electrolytic Refining of Copper (Puti dal'neyshego uluchsheniya i intensifikatsii protsessa elektrorafinirovaniya medi)

PERIODICAL: Tsvetnyye metally, 1959, Nr 5, pp 32-38 (USSR)

ABSTRACT: A.I. Levin, with others (Ref 1) has set down optimal conditions four the electrolytic refining of copper. Experience at the Pyshma medeelaktrollinyy zavod (Pyshma Electrolytic Copper Works) suggests that the practice there (as at other Soviet works) is equal to or better than the best abroad (Ref 2). At Pyshminsk 95% current utilization is obtained with 91-93% machine time of the series. Electrolysis is effected at 54-55 °C and a mean current density of 190 amp/m² with electrolyte containing 133 and 185-195 g/litre of copper sulphate and sulphuric acid, respectively. The ceils are of identical dimensions facilitating the use of prefabricated linings. Corrosion of starting sheets (most intense at the liquid surface) has been reduced by lead-plating their top parts (suggested by M.I. Nomberg and S.P. Pyunnenen).

于一个时间的时间也可能是一个时间的时间,这个时间,他们就是一个时间的时间,这个时间的时间,但是一个时间的时间,这个时间的时间,这个时间的一个一个一个一个一个一个

307/136-59-5-7/21

Ways of Further Improving and Intensifying the Electrolytic

Refining of Copper

Stainless steel (type 1Kh18N9T) starting sheets have given long service, but have not proved easier to strip than copper sheets. This stainless steel has found wide use in the electrolytic plant (e.g. for electrolyte heating tanks, pumps etc.). The author considers the current density used to be insufficient and discounts the view that high current density practice leads to deposit defects due to the deposition of antimony, arsenic, bismuth and other harmful impurities. Such effects can be avoided by proper procedures. Cathode quality can also be improved by additions of surfaceactive agents and much work in this direction has been done by Gintsvetmet, the Uraliskiy politekhnicheskiy institut (Ural Polytechnical Institute) and the works The effect of mixtures of surfaceactive agents has been found to be greater han that of individual agents (Ref 5). The author discusses ways of reducing electricity consumption: increasin, sulphuricacid concentration; increasing temperature; reducing inter-electrode distance; improving contact arrangements.

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000929510020-3"

** 15 个中国首都是这种理解的证明的证明是我们是我们的证明的证明的,然然可能没有的认为证明的证明的人,但是我们的证明的证明的证明的证明的证明的证明的证明的证明的

Ways of Further Improving and Intensifying the Electrolytic Refining of Copper

Current leakage can be an important factor (Ref 9), and heat losses should be reduced by covering the electrolyte surface. In view of the 1959-1965 development planned for the Ural non-ferrous metals industry many new features are to be introduced into Pyshma practice and research. e.g. on raising the autropart to the surface of the contract of the surface of the

and research, e.g. on raising the current density to 250-270 amp/m2, is to proceed.

There are 9 references, of which 8 are Soviet and 1 English.

ASSOCIATIONS: Ural'skiy politekhnichoskiy institut (Ural polytechnical Institute) and Pyshminskiy medselektrolitnyy zavod (Pyshma Electrolytic Copper Works)

S/081/61/000/002/003/023 A005/A105

Translation from: Referativnyy zhurnal, Khimiya, 1961, No. 2, p. 283, # 21221

AUTHORS: Prostakov, M.Ye., Kochergin, V.P., Levin, A.I.

TITLE: The Investigation of Corrosion of Passivated Tin Plate

PERIODICAL: "Byul. nauchno-tekhn. inform. Ural'skiy n.-i. in-t chern.metallov",

1959, No. 7, pp. 76 - 82

TEXT: The investigation of the corrosion rate of non-passivated, chemically and electrochemically passivated tin plate showed that the passivation of tin plate increases its resistance to aggressive media: electrochemically passivated tin plate has a higher corrosion resistance than chemically passivated tin plate in 3% CH_COOH, tomato sauce, NaCl, and animal fat. Chemically passivated tin plate is resistant under the conditions of action of fish preserves. It is established that the corrosion of tin plate in a gas medium totally depends on its coating porosity and is independent on the passivation method.

From authors' summary

Translator's note: This is the full translation of the original Russian abstract. Card 1/1

POMOSOV, A.V.: LEVIN, A.I.: KRYMAKOVA, Ye.Ye.

Effect of certain surface-active substances on the electrodeposition of compact lead from aqueous chloride solutions. Isv.vys.ucheb.sav.; tsvet.met. 2 no.6:121-125 '59. (MIRA 13:4)

1. Ural'skiy politekhnicheskiy institut. Kafedra tekhnologii elektrokhimicheskikh proisvodstv. (Lead--Electrometallurgy) (Surface active agents)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000929510020-3"

LEVIN, A.I.; PROSTAKOV, M.Ye.

Passivation of tin plate as a means for protecting food containers from corrosion. Kons. i ov. prom. 14 no.11:18-22 N '59.

(MIRA 13:2)

1. Ural'skiy politekhnicheskiy institut imeni S.M. Kirova (for Levin) 2. Ural'skiy nauchno-issledovatel'skiy institut chernykh metallov (for Prostakov).

(Tin plate--Corrosion) (Tin cans--Corrosion)

AUTHORS:

Falicheva, A.I., Levin, A.I.

sov/80-32-2-12/56

TITLE:

Šą,

On the Influence of Sulfate Ions on the Electric Precipitation of Chromium (O vliyanii sul'fatnykh ionov na elektro-

osazhdeniye khroma)

PERIODICAL:

Zhurnal prikladnov khimii, 1959, Vol XXXII, Nr 2,

pp 308-312 (USSR)

ABSTRACT:

Chromium can not be precipitated from solutions of chromium anhydride. Only a black sponge of hydroxides and basic chromium salts forms at the cathode. In the presence of anions, especially sulfate anions, chromium can be precipitated. These anions prevent the formation of a passivating film on the cathode so that the ions $\operatorname{Cr}_2\operatorname{O}_7^{2-}$ and $\operatorname{CrO}_4^{2-}$ can be reduced. The sulfate ions SO2- form very stable compounds with trivalent chromium. If the circuit is closed, a darkening of the electrolyte is observed at the cathode which moves gradually to the anode. In this dark part of the electrolyte ions of the type $\Gamma_{3,2}^{\text{Cr}_2(H_2O)_4(SO_4)_4}$ are probably contained. A small excess of Cr3+ is useful for obtaining shining chromium coating, i.e. for the regulation of the crystal growth

Card 1/2

APPROVED FOR RELEASE: 08/23/2000

CIA-RDP86-00513R0009205-16

SOV/80-32-2-12/56

On the Influence of Sulfate Ions on the Electric Precipitation of Chromium

[Ref. 15]. The most efficient ratio for the chromium precipitation is $\frac{\text{Cr}_2\text{O}_3}{\text{co}^2}$ = 1 : 2 to 2.5

There are 15 references, 9 of which are Soviet, 2 English, 2 American, and 2 German.

SUBMITTED:

June 19, 1957

Card 2/2

MINISTERNAL PROPERTY OF THE PR

SOV/80-32-2-15/56 Savel'yev, S.S., Levin, A.T. AUTHORS: Cathode Precipitation of Chromium From Polychromate Solutions TITLE: Produced by the Preliminary Electrolysis of Schium Dichronate (Katodnoye osashdeniye khrona iz polikhromatnykh restvorov, poluchennykh predvaritel nym elaktrolizom bikhverata natriya) Zhurnel prikladnov khimii, 1959, Vol XXXII, Hr 2, PERIODICAL: pp 321-326 (USSR) Concentration changes in a sodium bichromate anolyte show that ABSTRACT: the pH values of the electrolyte vary during electrolysis in the range of +3.9 to 0. The changes in the layers near the anode influence considerably the composition and the ion equilibrium in the sodium bichromate solutions. Sodium bichromate is transformed to dichromic acid on the anode during electrolysis with diaphragm. In the catholyte the concentration of NaOH increases simultaneously. The yield of CrO3 depends on the concentration of the initial scdium bichromate solution and on the conditions of the electrolysis. Polychromate solutions containing free polychromic acids and Card 1/2

SOV/80-32-2-15/56

Cathode precipitation of Chromium From Polychromate Solutions Produced by the Preliminary Electrolysis of Sodium Bichromate

sodium bichromate may also be used for the production of

metallic chromium by electrolysis.

There are 3 diagrams, 4 tables, and 6 references, 4 of which are

Soviet, 1 German, and 1 English.

SUBMITTED:

April 3, 1957

Card 2/2

5(4) AUTHORS:

Levin, A. I., Falicheva, V. I.

SOY/76-33-4-27/32

TITLE:

On the Mechanism of Retardation of Corrosion by the Application of an External Current and the Simultaneous Discharge of Zinc and Hydrogen Ions (O mekhanizme tormozheniya korrozii nalozhennym izvne tokom i sovmestnom razryade ionov tsinka i vodoroda)

PERIODICAL:

Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 4, pp 930-935(USSR)

ABSTRACT:

The corrosion protection of metals by the application of an external current is ever more extending nowadays. It is assumed (Ref 8) that the hydrogen (I) which separates at the cathode simultaneously with zinc (II) does not depend on the external current. As in this case the (I) separation should be the consequence of the already separated (II), which is not very believable, investigations were carried out in this connection. If the application of an external current hinders corrosion, the change of the content of corrosion products must be determinable by the aid of radioactive isotopes, at the same time as the activity of the solution in which the zinc ionizations are observed, is determined. Zn⁶⁵ was used and Zn was solved in 0.5 n H₂SO₄. The activity of the Zn samples and H₂SO₄

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solutions was tested with an apparatus of the B type (Ref 10).

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The experiments were made in 2 n H2SO4 on a corresponding apparatus (Fig), in which connection the polarization curves were plotted on a lamp potentiometer LLPU-1, following calibration by the aid of a potentiometer PPTV-1. The corrosion rate (CR) was evaluated according to the activity of the 2 n H2SO4. The values obtained of the (CR) (Table) show that without external current the electrolytic Zn is corroded quickest. In the case of a cathode polarization with a value being more negative than q_{K} = 0.853 v a standstill of corrosion may be observed. The mechanism of "protective effect" of the current is of a pure electrochemical nature and is brought in connection with a rearrangement process of the binary electric layer at the interface metal-solution. The formation of an excess of electrons in the metallic shell of the binary layer acts as a corrosion-preventing factor and may be regarded as a kind of barrier preventing the passage of Zn-ions into the solution. The (I)-separation is a primary electrode reaction of the H -ion discharge and not a secondary process

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On the Mechanism of Retardation of Corrosion by the Application of an External Current and the Simultaneous Discharge of Zinc and Hydrogen Ions

in consequence of a zinc dissolution. All experimental data obtained may be explained satisfactorily according to the theory of retarded ion discharge. There are 1 figure, 1 table, and 15 references, 13 of which are Soviet.

ASSOCIATION: Ural'skiy politekhnicheskiy institut im. S. M. Kirova, Sverdlovsk

(Ural Polytechnic Institute imeni S. M. Kirov, Sverdlovsk)

SUBMITTED: October 7, 1957

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5 (4) AUTHORS: Levin, A. I., Savel'yev, S. S.

05827 \$0¥/76-33-10-25/45

TITLE:

On the Mechanism Underlying the Formation of Polychromate Solutions in the Electrolysis of Sodium Bichromate in a

Diaphragm Bath

PERIODICAL:

Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 10, pp 2264 - 2270

(USSR)

ABSTRACT:

The investigations mentioned in the title were made in view of the fact that in recent years electrolytic chromium deposition has found wide application not only in electroplating but also in hydrometallurgy (Ref 1). Experiments were first made by means of an electrolyzer with a stable mercury cathode and a lead anode according to I. G. Shcherbakov (Ref 5), the anode-

and cathode space being separated by a diaphragm:

Hg | NaOH, Na₂Cr₂O₇, H₂O | H₂O, Ha₂Cr₂O₇, H₂Cr₂O₇ | [†]Pb. The use of a resting cathode, however, gave rise to experimental difficulties; therefore, an electrolyser was used for further experiments in which the mercury was conveyed from the cathode space to the decomposition space. In this connection, the discharge of Na[†] ions was observed to occur the easier the lower was the

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On the Mechanism Underlying the Formation of Polychromate 30V/76-33-10-25/45 Solutions in the Electrolysis of Sodium Bichromate in a Diaphragm Bath

concentration of metallic sodium in the surface layer of the liquid cathode; the decomposition rate of the analgam was proportional to the root square concentration of metallic sodium in the mercury surface layer. Similar observations were also made by Broensted (Ref 11), Sklyarenko (Ref 12) and Iofa (Ref 13). With sufficiently intense circulation of the mercury, a reduction in the number of chromate ions on the cathode can thus be prevented, and the hydrogen separation can be reduced to a minimum. The cathodic processes occurring in the above system have much in common with the reactions on mercury cathodes in baths which are used in the production of chlorine and alkali. Experimental results (Table) indicate that of the three processes possible the following one takes place on the anode: H₂O - 2e --> 2H⁺ + O. Polychromate solutions are formed on the lead anode, which are more abundant in free polychromic acids. This is conspicuously promoted by the formation of PbO, on the anode. The diaphragm and quick removal of the products from the

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On the Mechanism Underlying the Formation of Polychromate SOY/76-33-10-25/45 Solutions in the Electrolysis of Sodium Bichromate in a Diaphragm Bath

> anode- and cathode space favor this process. The formation of isopolychromic acids on the anode is a secondary process taking place in acid medium due to polymerization of the chromate ions. Polychromate electrolytes allow for the production of thicklayered cathodic chromium coatings which are more suitable than those obtained from common baths. There are 2 figures, 1 table, and 20 references, 16 of which are Soviet.

ASSOCIATION:

Ural'skiy politekhnicheskiy institut im. S. M. Kirova, Sverdlovsk (Ural Polytechnic Institute imeni S. M. Kirov, Sverdlovsk)

SUBMITTED:

March 25, 1956

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CIA-RDP86-00513R000929510020-3" APPROVED FOR RELEASE: 08/23/2000

8/081/61/000/003/002/019 A166/A129

AUTHOR:

Levin, A. I.

TITLE:

Adsorption layers and their specific effects on the surface properties of metal and the structure of cathode sediments

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 3, 1961, 87, abstract 3B666. (Tr. Ural'skogo politekhn. in-ta, 1960, Collection 94, 70 - 83)

The role of adsorption films in the kinetics of metallic electroplat-TEXT: ing is discussed from the point of view of changes in the chemical state of the surface and their role in protection against corrosion. The radioactive isotope method was used to confirm that the decrease in adhesion between Zn and Al when Sb is present in the electrode is due to the formation of a film from antimony hydroxide. The formation of cathode films is ascribed to a pH change in the layer next to the cathode, the limit of which is the pH of hydroxide formation by metallic oxides. The author discusses the role of passivation caused by alkalization of the catholyte and the role of the appearance of colloidal suspensions in the formation of a dendritic structure during powdered metal plating at high current densities. The author examines the role of adsorption films in wetting the elec-

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Adsorption layers and their specific effects on...

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trode and the mechanism of passivating film formation in the electrolysis of complex solutions, especially in Cu electroplating from pyrophosphorous electrolytes.

Summary by Z. Solov'yeva

[Abstracter's note: Complete translation]

Card 2/2

SOKOLOV, N.V.; LEVIN, A.I.

Electrolytic treatment of ceramic metal spinnerets. Trudy Ural. politekh.inst. no. 96:42-49 '60. (MIRA 14:3) (Ceramic metals)

POMOSOV, A.V.; LEVIN, A.I.; KRIMAKOVA, W.Yc.

Electrolytic recovery of lead from its aqueous chloride solutions.
Trudy Ural.politekh.inst, no.96:50-62 '60. (MIRA 14:3)

(lead plating)

LEVIN, A.I.; FALICHEVA, V.I.

Investigation of cathodic processes in the electrodeposition of sinc by means of radioastive indicators. Izv. vys. ucheb. sav.; tsvet. met. 3 no.3:62-69 '60. (MIRA 14:3)

1. Ural'skiy politekhnicheskiy institut, Kafedra tekhnologii elektro-khimicheskikh proisvodstv.

(Zinc-Electrometallurgy)
(Radiosotopes-Industrial applications)

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LEVIN, A.I.

Means for lowering the consumption of electric power in electrolysis sections of nonferrous metal plants. Prom.energ. 15 no.4:9-11 Ap '60. (MIRA 13:6)

CIA-RDP86-00513R000929510020-3 "APPROVED FOR RELEASE: 08/23/2000

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sov/80-33-3-28/47

AUTHORS:

Levin, A. I., Chang Kuo-heng

TITLE:

Communication I. Electrolytic Refining of Tin Using

Sulfamine Electrolytes

THE TRADE SERVICE STREET, THE PROPERTY OF THE

PERIODICAL:

Zhurnal prikladnoy khimii, 1960, Vol 33, Nr 3, pp 667-674 (USSR)

ABSTRACT:

The electrolytic refining of tin from tin

sulfaminate Sn(NH₂SO₃)₂ was investigated.

dense tin deposits were obtained when the content of Sn in the electrolyte was between 30 and 55 g/liter; below 30 g/liter the deposits were friable, above

55 g/liter they formed dendrites which shortcircuited the electrodes. Tin was present in the electrolyte chiefly as Sn^{2+} and the amount of Sn^{4-}

did not exceed 5-10%. The specific electroconductivity

of the electrolyte at a $Sn(NH_2SO_3)_2$ concentration of 40 g/liter was 0.0687 Ω^{-1} . cm⁻¹. The addition

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APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000929510020-3"

Communication I. Electrolytic Refining of Tin Using Sulfamine Electrolytes

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of H₂SO₄ considerably increased the electroconductivity. The current density of 300 amp/m² could be increased to 800/m² in circulating electrolyte, and to 1000 amp/m² in electrolyte mixed by means of agitators. Electrolyte containing total Sn, 40 g; free H₂SO₄, 80 g; glue, 4.0 g; -napthol, 0.7 g, at a rate of circulation equal to 1 bath volume/hr and current density of 500 amp/m² gave in 48 hrs a 6 mm-thick tin deposit of a fine crystalline structure with the following impurity content: Cu, 0.008%; Pb, 0.02%; Fe 0.003%; As, 0.002%; Sb, 0.003%; Bi, 002%; Zn, 0.002%. The yield, based on current, was 97.5%; the energy consumption 573 kw/ton. The total voltage drop consisted basically of ohmic losses in the electrolyte (45.1%) and cathodic polarization (52.4%). There are 4 figures; 2 tables; and 12 references, 1 U.S., 1 Italian, 10 Soviet. The U.S. reference is: H. S. Choguill, F. T. Shell, Trans. Kansas Acad. Sci., 57, 386 (1954).

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Communication I. Electrolytic Refining of Tin Using Sulfamine Electrolytes

78227 sov/80-33-3-28/47

ASSOCIATION:

S. M. Kirov Ural Polytechnical Institute (Ural'skiy politekhnicheskiy institut imeni S. M. Kirova)

SUBMITTED:

May 20, 1959

Card 3/3

CIA-RDP86-00513R000929510020-3" APPROVED FOR RELEASE: 08/23/2000

LEVIN, A.I.; CHZHAN GO-KHEN [Chang Kuo-heng]

Effect of the impurities present in a sulfamine electrolyte on the quality of cathodic tin. Zhur.prikl.khim. 33 no.4:854-860 ap 160.

1. Ural'skiy politekhnicheskiy institut imeni S.M.Kirova. (Tin plating) (Sulfamine)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000929510020-3"

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LEVIN, A. I.; PROSTAKOV, M.Ye.; KOCHERGIN, V.P.

Thickness of passive films on tin and their protective action. Zhur. prikl. khim. 33 no.9:2102-2108 S *60. (MIRA 13:10)

1. Uraliskiy politekhnicheskiy institut im. Kirova i Uraliskiy nauchno-issledovateliskiy institut chernykh metallov.

(Films (Chemistry)) (Tin) (Passivation)

。 1985年,1985年,1987年,1987年,1987年,1987年,1987年,1987年,1987年,1987年,1987年,1987年,1987年,1987年,1987年,1987年,1987年,1987年,1

LEVIN, A.I.; CHZHAN GO-KHEN [Chang Kuo-heng]; ALFINOVA, Ye.A.

Investigating the electrorefining of tin with use of sulfamine electrolytes. Izv. vys. ucheb. zav.; tsvet. met. 4 no. 1:88-95 161. (MIRA 14:2)

1. Uraliskiy politekhnicheskiy institut, kafedra tekhnologii elektrokhimicheskikh proizvodstv.

(Tin-Electromstallurgy) (Sulfamine)

。"我们我们是你是多数的人的,我们就是我们的,我们就是我们的一个人的,我们就是我们的人的,我们就是我们的人的人,我们就是我们的人的人,我们就是我们的人,我们就是

S/196/61/000/011/002/042 E194/E155

AUTHORS: Levin, A.I., and Lazarev, V.F.

TITLE: The use of alternating current in forming lead

accumulator plates

PERIODICAL: Referativnyy zhurnal, Elektrotekhnika i energetika, no.11, 1961, 20, abstract 11A 117. (Vestn. elektropromsti, no.6, 1961, 60-62)

TEXT: The effects that result from superposing a.c. on d.c in the process of forming lead accumulator plates were investigated. The a.c. current density was 0.715 A/dm², while the d.c. current density ranged from 0.715 to 4.29 A/dm². The ratio of direct to alternating current density was maintained constant and greater than 1 during each test. The paste for the positive electrode was made of litharge and red lead and that for the negative of lead powder. It was found possible to increase the direct-current density by a factor of 2 - 3 as compared with the value normally used in production and to cut the forming time from 15-18 to 5-6 hours without appreciably increasing the temperature. If the d.c. is more than 3 times the a.c. component Card 1/2

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The use of alternating current ... \$\frac{5}{196}\frac{61}{000}\frac{011}{002}\frac{042}{E194}\frac{1}{E195}

there is, however, a notable diminution in the effectiveness of the plate-forming conditions with change in the direction of current. With the above mentioned ratio of current densities the a.c. has no appreciable influence on the electro-chemistry chemical composition or porosity of the active substance of starter accumulator plates but appreciably increases their mechanical strength.

5 literature references.

[Abstractor's note: Complete translation.]

Card 2/2

KOROBOCHKIN, B.L. (Moskva); LEVIN, A.I. (Moskva)

Effect of the dry friction in the guides on the stability of the hydraulic servesystems of copying machine tools. Avtom.

i telem. 22 no.9125-1256 S '61. (HIRA 14:9)

(Machine tools) (Hydraulic control)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000929510020-3"

GURYLEV, V.V.

Using a pyrophosphate electrolyte in the copper plating of a steel wire. Zhur.prikl.khim. 34 no.8:1775-1779 Ag '61.

(MIRA 14:8)

1. Ural'skiy politekhnicheskiy institut imeni S.M. Kirova.
(Wire)
(Copper plating)

LEVIN, A.I.; LETSKIKH, Ye.S.

All-Union Conference on Copper Refining. TSvet.met. 34 no.9:86-88 (MIRA 14:10)

(Copper industry—Congresses)

PROSTAKOV, M.Ye.; LEVIN, A.I.; KOCHERGIN, V.P.

Anodic behavior of zinc and tin in alkaline electrolytes. Zhur. fiz. khim. 35 no.2:420-425 F '61. (MIRA 16:7)

1. Ural'skiy institut chernykh metallov i Ural'skiy politekhnicheskiy institut imeni Kirova, Sverdlovsk.

(Tin) (Zinc) (Electrochemistry)

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000929510020-3"

LEVIN, A.I., prof., doktor tekhn, nauk

Effect of the surface charge of metals and concentration changes near the electrodes on the kinetics of electrode reactions. Shor, nauch, trud. Ural. politekh, inst. no.122:83-92 '61.

(MIRA 17:12)